

this connection we believe that he rendered valuable service to Sir Bartle Frere during his mission to Zanzibar.

The *New York Herald* of May 14 says:—The evidences multiply which go to show that there has been an early and exceptionally large break-up of the ice-fields within the Arctic basin since the sun crossed the Equator. The extraordinary mildness of the last winter was universally marked east of the Rocky Mountains, and it would seem the abnormally high temperature extended far to the north and made its impression on the icy seas. Off the coast of Newfoundland the recently reported ice drift will be memorable not only for the magnitude, but also for the multitude of the icebergs and the ice-fields. On the western side of the continent the winter reports indicated a milder season in the vicinity of Behring Sea and its Polar approaches. It is not improbable, therefore, that the steamer *Corwin*, about to sail for the relief of the missing whalers and to communicate with the American Arctic expedition in the *Jeannette*, will find that the premature development of the spring has already loosened their icy bonds, and that they are preparing to pursue their respective routes. The sun's power may be insufficient to dissolve the *Jeannette's* solid moorings, but the mightier agency of winds and waves attending the storms that sweep the ocean north of Behring Strait in May and early June may be expected to break up the ice off Wrangell Island and accomplish her release sooner than if she had wintered on the north-east side of Arctic America.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—Prof. Humphry's Rede Lecture on man was interesting and eloquent, if on the whole rather depressing. He pleaded for long and patient investigation, especially in coming to the discovery or comprehension of any process, whether of natural selection or any other, by which the large cranial cavity of man can have been evolved in early men. He gave full weight to the argument from the size of the brain at birth, and the perfection of the lungs at the same period. At any rate the brain of primitive man appeared to have been structurally fitted for higher duties than they were ever called upon to perform. His brain was prophetic of his future. Ability is to be measured by the power to deal with the material before us; and thus it is doubtful whether the ability of the present was greater than that of preceding generations, prehistoric or historic. Progress did not necessarily imply improvement, and increased means did not imply greater power, however they might enable power to be wielded with better effect. The physical capability, he thought, long preceded functional activity; and man's advance to civilisation was the result of the response of his nature to his conditions. He believed in the great value of contact and blending of varieties, and attributed the stationary condition of certain races partly to their early progress keeping them exclusive, and to the physical conditions which had walled them in. The climate of the temperate portions of the Eurasian Continent proved favourable to the development of the energies of mammals and men, and the configuration of the northern continent was especially favourable to migration. Thus there had nowhere been through any long period the still dullness of pure blood or the cramping domination of one power. The mingling of races in Britain, in a land of great natural advantages and resources, had led to the development of ability in the people to work out freedom, to invent, to adopt international conventions, and to free others. But he perceived dangers in the increased sensitiveness accompanying the great subdivision of labour nowadays. Of the two evils, learned feebleness was a greater evil than ignorant strength. The preservation of the weak and sick did not make the mass of people stronger and healthier; thus there must be sterner sanitary precautions as a foremost question. Would that some of the time spent on Burials Bills could have been spent in considering the crying needs of the health of the living. This misapplication of energy, said the Professor, had its parallel in the mistaken efforts to prevent the investigations by which physiology might be advanced and the laws of health educed. Few things would tend to the improvement of the race so much as judicious matrimonial selection, and he hinted at the importance of providing a healthy race for the future. Finally, as to man's body at least, and its future, he felt compelled to say that we found ourselves floating on the stream of time; the barque, we suppose, moves on. Sufficient for the day must be

the knowledge thereof. Whether we peer fore or aft, it is obscurity.

SIR GEORGE JESSEL, the Master of the Rolls, has been elected Vice-Chancellor of London University, in place of Sir John Lubbock, who resigned on his becoming a candidate for the representation of the University in Parliament. The election is not likely to be contested.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, May 24. Anniversary Meeting.—Prof. Allman, F.R.S., president, in the chair.—At this, the ninety-second annual general meeting, there was a large attendance of the Fellows. The President, after a few introductory remarks of congratulation on the prospects of the Society generally, referred to the obituary, pointing out that several of the oldest members would now no longer appear on the list. Among others, Prof. T. Bell (*æt.* 87), J. Miers (*æt.* 91), Gen. Munro, Dr. David Moore, Wilson Sanders, E. W. Cooke, R.A., Fellows, and T. Atthey, Associate, besides Foreign Members of high standing, showed a heavy death-roll. The Secretaries and Treasurer, after full term of service, had proposed to resign, and as a matter of form this had been acceded to by the Council. The Secretary (Mr. F. Currey) then read his report. Since the last anniversary the Society had lost by death ten Fellows, three Foreign Members, and one Associate; and three Fellows had withdrawn. On the other hand, there had been an accession by election of twenty-eight new Fellows, three Foreign Members, and four Associates. The library showed a marked increase and improvement, by additions obtained by purchase, exchange, and donations, and had been amply used in biological reference and loan of books. The scientific communications and exhibitions at the meetings during the session had kept pace with the march of science, and the attendance of the Fellows bore witness to the active interest taken in the proceedings generally.—The Treasurer (Dr. J. Gwyn Jeffreys) then read his report. In resigning office he congratulated the Society on its increasing prosperity in a financial point of view. Notwithstanding the late depression of commerce, which had to a greater or less extent injuriously affected other scientific societies, as well as the additional yearly expenditure consequent on the removal to Burlington House, and the greater amount of salaries paid, the publications had not been restricted; considerably more having been spent on the library than formerly. The Society is quite free from debt; has an invested capital of £3730 12s. 8d., and the balance at bankers and on hand at this date is £522 18s. 2d. Twelve months ago, owing to the unfortunate and long illness of the Librarian, his accounts became confused, and the Asst.-Secretary had since undertaken the receipts and payments; and had the books thoroughly balanced. A Special Committee had also been appointed by the Council for investigating the financial position of the Society, and their valuable suggestions had been adopted, especially as to the reasonable limitation of the publication expenses, which had increased from £796 14s. in 1876 to £1100 5s. 1d. in 1879. With respect to the compositions, which, even if they were altogether invested, must seriously diminish the income of the Society, the Treasurer stated that during his five years of office he had received £1968, and invested £920 15s. During the previous five years no part of the compositions appear to have been invested. He had also received and invested £840 for legacies. The Society's capital had been doubled; it was in 1875 £1860, and is now £3730 12s. 8d. The annual contributions received in 1876 amounted to £694 13s., and last year to £948 12s. The ballot for Council and Officers having been proceeded with, the following gentlemen retired from the Council:—Messrs. J. Ball, W. Carruthers, F. DuCane Godman, Dr. A. Günther, and the Rev. G. Henslow. In their places were elected:—Messrs. E. R. Alston, G. Bentham, G. Busk, Dr. M. Foster, and B. D. Jackson. For the Officers, Prof. G. J. Allman was re-elected President; Mr. Fredk. Currey (the outgoing Secretary), Treasurer; Mr. B. Daydon Jackson, Botanical Secretary; and Mr. Edward R. Alston, Zoological Secretary.—Prof. Allman thereafter gave his usual annual address, taking for his subject "The Vegetation of the Riviera, a Chapter in the Physiognomy and Distribution of Plants." In this address (not well adapted for brief abstract), by a few broad outlines, a sketch of the most striking features of the vegetation and its peculiarities as derived from the physical contour of the country, geographical position, and climate, was given. The phenomena extant are of high interest

to the botanist, for though belonging to the European area, the Riviera exhibits in climate and character of vegetation an obvious link between the temperate and tropical zones. Its accessibility and singular flora, with scenes of unrivalled beauty, offer ample material for study.

Statistical Society, May 11.—Dr. W. A. Guy, F.R.S., in the chair.—Two papers were read: the first by Capt. P. G. Craigie, Secretary of the Central Chamber of Agriculture, on ten years' statistics of British agriculture, 1870-79, and the second by Messrs. J. B. Lawes and J. H. Gilbert, on the home produce, imports, consumption, and price of wheat, over twenty-eight harvest years, 1852-53, to 1879-80, inclusive. Messrs. Lawes and Gilbert in their paper arrived at the following conclusions:—The area under wheat was about 20 per cent. less over the last three than over the first eight years of the twenty-seven. The average produce per acre over the United Kingdom amounted to only $27\frac{1}{2}$ bushels over the whole twenty-seven years as compared with $28\frac{1}{2}$ bushels which we had previously assumed to represent the average produce per acre of the country at large. The annual imports averaged about three times as much over the last three as over the first eight of the twenty-seven years. The total consumption of wheat per annum had increased from an average of about 18 million quarters over the first eight years to nearly 24 million quarters over the last three years. The price of wheat per quarter had declined from an average of 57s. 8d. over the first eight years (including the period of the Crimean war) to 49s. over the last three years. The annual value of the home produce available for consumption had declined from an average of nearly 38,000,000l. over the first eight years, to less than 25,000,000l. over the last three years. The annual value of the imported wheat had increased from an average of little more than 13,000,000l. over the first eight years, to more than 33,000,000l. over the last three years. Over the whole period of twenty-seven years, 40.4 per cent. of the wheat consumed had been derived from imports; and the amount supplied from foreign sources had increased from an average of 26.5 per cent. of the total over the first eight years, to 57.4 per cent. of the total consumed over the last three years of the twenty-seven.

PHILADELPHIA

Academy of Natural Sciences, January 6.—On the nudibranchiate gastropod mollusca of the Northern Pacific Ocean, with especial reference to those of Alaska, by Dr. R. Bergh, Copenhagen (Part 2).—The terrestrial mollusca inhabiting Cook's Islands, by Andrew Garrett.

January 27.—Carcinological notes: Revision of the Gelasini, by J. S. Kingsley.—On the Pacific species of *Caulokatlus*, by W. N. Lockington.

PARIS

Academy of Sciences, May 24.—M. Edm. Becquerel in the chair.—The following papers were read:—On the secular variations of the mathematical figure of the earth, by M. Faye. Regarding the anomaly of the small action of such masses as the Himalayas on the pendulum, and the great attractive force often found at sea, he points out that under seas the cooling of the globe proceeds more quickly and deeply than under continents. The bottom of the first seas would thicken in advance of the dry crust, and would press increasingly on the liquid nucleus, raising the weak parts of the first crust, which were mostly round the North Pole. The water level would rise on our hemisphere and fall on the southern, and the ellipsoid of revolution become a simple spheroid. With further cooling the basins of the southern seas would have increasing attraction and the waters would gradually rise in the southern hemisphere, their surface of level returning to the ellipsoidal form, which, M. Faye thinks, is slightly exceeded at present. Thus the earth's crust shows an alternate balancing movement determined by excess of weight of maritime crusts and the points of less resistance in the heart of continents.—On the refrigerating mixtures formed by an acid and a hydrated salt, by M. Berthelot. The chemical energies act according to the principle of maximum work, giving a first exothermic reaction; then the calorific energies act inversely causing absorption of heat under the four-fold form of dissociation, disaggregation by the solvent, dissolution, and liquefaction.—Action of acids on alloys of rhodium with lead and zinc, by M. Debray. He describes a peculiar substance (deflagrating at about 400° with heat and light) obtained from treating the rhodium-lead alloy with nitric acid. Rhodium forms, with zinc, alloys which may exist in two isomeric states, giving very different

reactions.—Determination of the position of a bridge to be constructed over the Danube, near Silistria, by M. Lalanne.—On the transcendents which play a fundamental part in the theory of planetary perturbations, by M. Callandreau.—On the theory of ideal complex numbers, by M. Dedekind.—Integration of certain differential equations with the aid of functions Θ , by M. Appell.—On elimination, by M. Le Paige.—Industrial utilisation of solar heat, by M. Mouchot. He has been experimenting near Algiers since May last year. He specifies improvements, (e.g., an arrangement for keeping the liquid to be vaporised in contact with the whole heated surface), and indicates results. *Inter alia*, since March the receiver has actuated a horizontal engine (without expansion or condensation) at the rate of 120 revolutions a minute with constant pressure of 3.5 atm.; the disposable work being about 8 kgm. he set it to work a pump giving 6 litres per minute at 3.50 m., or 1,200 litres per hour at 1 m., and to throw a jet 12 m. This goes on from 8 a.m. to 4 p.m.—Combinations of alcohols with baryta and lime; products of decomposition, by heat, of these combinations, by M. Destrem.—Reactions produced between ammoniacal salts and carbonate of lime, by M. Nivet. A double decomposition is shown to occur in the ground and in water, the result being a loss of ammonia, which is greater, the less absorbent the soil, or the less the quantities of CO_2 formed in it.—On the formation of callosity, by MM. Rigal and Vignal.—Experiments relative to peritoneal shock, by MM. Reynier and Richet.—On the form and the seat of movements produced by cortical excitation of the brain, by M. Couty. There is no relation between the cortical region excited and the form or the place of the motions. Explanation of the phenomena is possible only by admission of the theory that the cortical white fibres are conductors of bulbo-medullary excitations, and comparable to the peripheric conductors, notwithstanding their course and their much more complicated connections.—On the fixing power of certain organs for alkaloids introduced into the blood which traverses them, by M. Héger. The hepatic tissue retains most; the lungs absorb very little.—Discovery of horse-pox vaccination, by M. De Pietra-Santa. Several heifers were successively (and with effect) inoculated in Paris with lymph from a young blood horse which had come from Germany, and had horse-pox.—On a phenomenon of sensibility observed in acacia, by Mr. Phipson. He obtained this by striking the terminal leaflet several times with his finger.—On the tertiary strata of Brittany; environs of Saffré (Loire-Inférieure), by M. Vasseur.—M. Dubrunfaut returned several pieces (letters, memoirs, and reports) belonging to the Archives of the Academy.

CONTENTS

	PAGE
SIGN LANGUAGE AMONG THE AMERICAN INDIANS. By Prof. A. H. SAYCE	93
TESTING TELEGRAPH LINES	94
OUR BOOK SHELF:—	
Johnston's "Physical, Historical, Political, and Descriptive Geography"	95
"Zeitschrift für das chemische Grossgewerbe"	95
LETTERS TO THE EDITOR:—	
The Lesser Spotted Woodpecker.—THE DUKE OF ARGYLL	95
Mr. Preston on Vortex Atoms.—G. H. DARWIN, F.R.S.	95
The Inevitable Test for Aurora.—DR. WARREN DE LA RUE, F.R.S.; DR. HUGO MÜLLER	96
Cloud Classification.—E. H.	96
"Chipped Arrow-Heads".—DR. R. W. COPPINGER	97
Cup and Ring Stones.—J. ROMILLY ALLEN	97
Songs of Birds.—A. N.	97
COMPARATIVE ANATOMY OF MAN, III. By Prof. FLOWER, F.R.S.	97
THE UNITED STATES WEATHER MAPS, SEPTEMBER, 1877.	100
CONTRIBUTIONS TO MOLECULAR PHYSICS IN HIGH VACUA. By WILLIAM CROOKES, F.R.S. (With Illustrations)	101
ROCK-WEATHERING, AS ILLUSTRATED IN CHURCHYARDS. By Prof. GEIKIE, F.R.S.	104
GERHARD JOHANNES MULDER	108
NOTES	109
OUR ASTRONOMICAL COLUMN:—	
Occultation of a Fixed Star by Saturn	112
The Polar Compression of Mars	112
The Next Total Solar Eclipse	112
BIOLOGICAL NOTES:—	
Chinese Alligators	112
Fossil Corals	112
Circulation in Worms	113
Large Cuttle Fish	113
Sternum in Dinosaurs	113
Antipatharia of the Blake Expedition	113
American (East Coast) Siphonophora	113
Parasite on the American Blue Pike	114
Motion in Algae	114
GEOGRAPHICAL NOTES	114
UNIVERSITY AND EDUCATIONAL INTELLIGENCE	115
SOCIETIES AND ACADEMIES.	115